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Taxonomic revision of the Hypoxylaceae (Ascomycota, Xylariales) from the Yucatan Peninsula biotic province, Mexico

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Abstract. The family Hypoxylaceae has 75 species recorded from Mexico, of which 48 are known from the Yucatan Peninsula, a biotic province that has great fungal diversity due to its unique biogeographic history. Herbarium specimens were revised, and seven expeditions were carried out in the most representative types of vegetation: tropical deciduous forest, evergreen forest, and coastal dunes, including the Cuxtal Ecological Reserve, Ría Celestún Biosphere Reserve, and Calakmul Biosphere Reserve. The specimens were identified morphologically and a taxonomic key to genus and species is provided. *Hypomontagnella monticulosa* (Mont.) Sir, L. Wendt & C. Lamb. and *Daldinia eschscholtzii* (Ehrenb.) Rehm have wide distribution in this biotic province.

Key words. Ascomycetes, biosphere reserve, diversity, Neotropics, sac fungi, tropical forest

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INTRODUCTION

Species in the family Hypoxylaceae DC., erected by Wendt et al. (2018), are characterized by having effused-pulvinate to globose stromata; are brown, black, orange, vinaceous, cyan blue, or grayish in color; possess tubular, ovoid, to spherical perithecia; have umbilicate or papillate ostioles surrounded or not by a disc; and are with or without KOH-extractable pigments. Like its sister family, Xylariaceae Tul. & C. Tul., Hypoxylaceae shows greatest diversity in tropical areas (Ju and Rogers 1996; Wendt et al. 2018).

Recent works have reported novelties for Hypoxylaceae, among which is the segregation of the genus *Parahypoxylon* Cedeño-Sanchez, Charria-Girón & M. Stadler (Cedeño-Sanchez et al. 2023), the review of *Phylacia* Lév. in Argentina based on chemotaxonomic characters (Lambert et al. 2023), studies of the genus *Entonaema* Möller based on its phylogeny, biogeography and ecology (Pošta et al. 2023), and new species descriptions in the genus *Hypoxylon* Bull. from the Neotropics (Cedeño-Sanchez et al. 2020, 2024; Fournier et al. 2024).

For the Yucatan Peninsula, 43 species of Hypoxylaceae are known from previous reviews (Guzmán 1983; San Martín and Lavin 1997; San Martín et al. 1999; Medel et al. 2006; Barbosa-Reséndiz et al. 2020; Reyes et al. 2020; Raymundo et al. 2021), representing 8.4% of the 489 species described worldwide (Bánki et al. 2024), and 54.7% of the 75 known species of Hypoxylaceae from Mexico (CONABIO 2024), highlighting the importance of this group in the area. In this work, we add two recently described species, one new record for Mexico (Reyes et al. 2024) as well as two new records for the Yucatan Peninsula. We include descriptions, distribution data, ecological information such as host and vegetation type, and an identification key for the included genera and species.

STUDY AREA

The Yucatan Peninsula (YP) of Mexico lies between 18°N and 21.5°N. It is a region of few reliefs with altitudes below 400 m, formed mainly by limestone rocks of Karstic origin that have created an underground drainage system with caves and cenotes. The physiographic province of the YP covers the whole territory of Yucatan and Quintana Roo states, almost the entire Campeche state, the Department of Petén in Guate-

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mala, and the North of Belize. The lack of relief increases the marine climatic influence in the region, placing it in the path of Caribbean winds and cyclones, although it is outside the main tectonic and climatic belt. Marine transgressions kept the Yucatan Peninsula immersed during different periods, so its biota result from relatively recent, post-Pliocene dispersal (Morrone 2005). As a biotic province, it presents floristic elements from the Antillean region, southern Central America, and southeastern Mexico (Rzedowski 1978; Escamilla et al. 2005). The most important types of vegetation in the YP are (a) coastal dune, (b) mangrove, (c) deciduous forest, (d) subdeciduous forest, (e) evergreen forest, (f) flooded forest, (g) savannah, (h) peten, (i) hydrophilic community, (j) secondary vegetation (Flores and Espejel 1994), and (k) coquinal (Duno et al. 2024).

METHODS

Exploration areas and sample sources. We examined 240 specimens from the "Alfredo Barrera Marín" Herbarium, ABM-UADY, and the "Gastón Guzmán Huerta" Fungi Collection ENCB-IPN. We also carried out seven expeditions in different vegetation types of the Yucatan Peninsula from 2021 to 2024 (Table 1, Figure 1).

Morphological characterization. Fungal morphological characterization was made with sections mounted in water, 10% KOH to check stromatal pigments, and Melzer's reagent to show the amyloid reaction of the apical ring of the asci. Specialized literature was consulted for each genus (San Martín et al. 1999; San Martín and Lavin 1997; Medel et al. 2006; Stadler et al. 2014; Kuhnert et al. 2016; Lambert et. al. 2019; Barbosa-Reséndiz et al. 2020; Reyes et al. 2020,2024). Colors were described according to Rayner (1970).

Table 1. Sites sampled in the Yucatan Peninsula.

Sites	Geographic coordinates	State	Vegetation
Reserva Ecológica Cuxtal	20°52'9.26"N, 089°37'02.83"W	Yucatán	Deciduous forest
Alfonso Caso (Tekax)	20°03'35.45"N, 089°08'35.01"W	Yucatán	Subdeciduous forest
Reserva de la Biosfera Ría Celestún	20°49'38.97"N, 090°24'0.18"W	Yucatán	Deciduous forest and coastal dune
Dzemul	21°17'32.22"N, 089°19'40.36"W	Yucatán	Deciduous forest
Estación experimental INIFAP, Bacalar	18°47'00.21"N, 088°29'02.89"W	Quintana Roo	Evergreen forest and flooded forest
Ejido Tres Garantías	18° 7'41.13"N, 089°00'34.50"W	Quintana Roo	Evergreen forest
Reserva de la Biosfera Calakmul	18°12'16.64"N, 089°43'26.50"W	Campeche	Evergreen forest

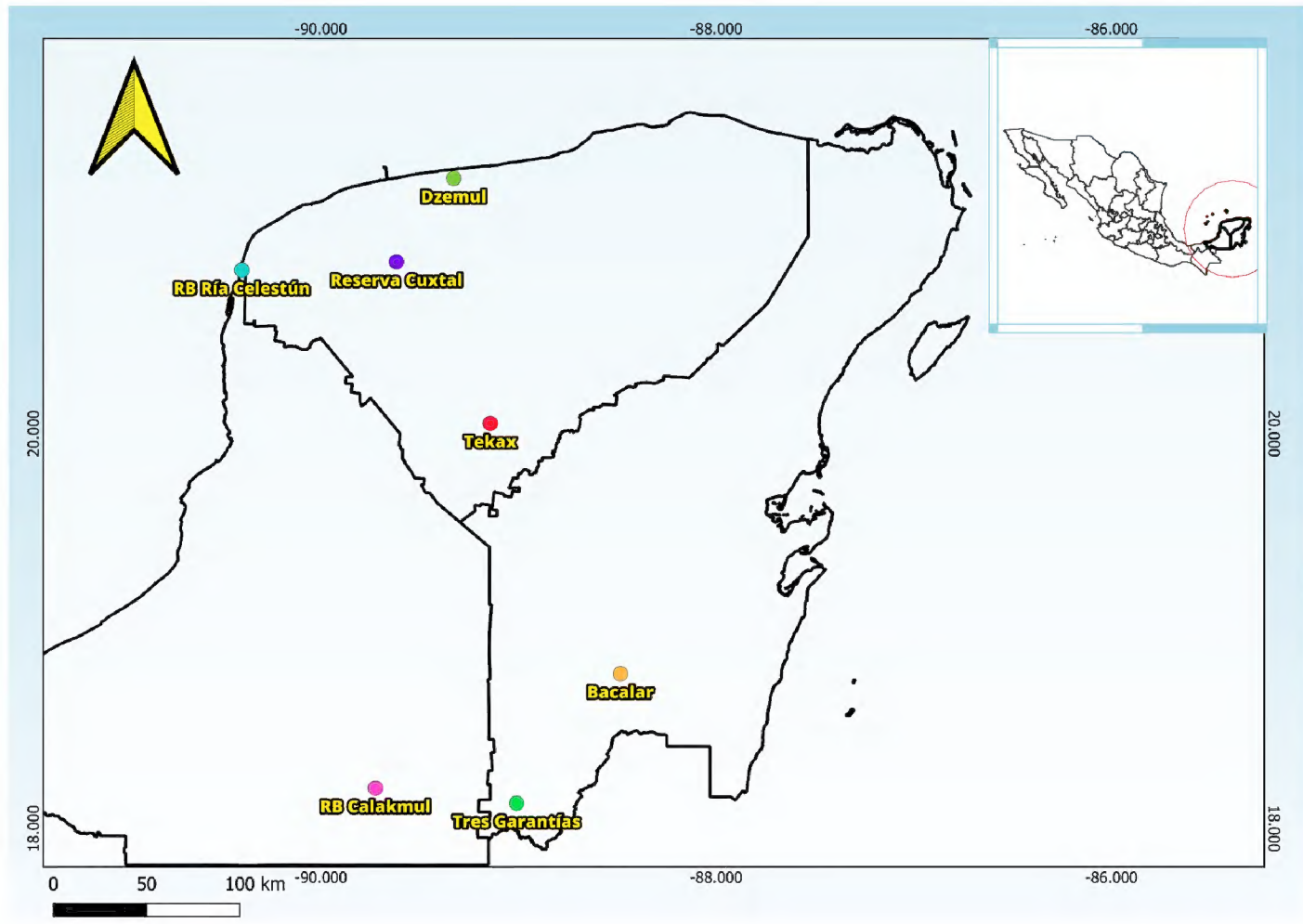

Figure 1. Sites sampled in the Yucatan Peninsula. Inset map shows the location of the study area (red circle) in Mexico.

RESULTS

Following revision of the literature, herbarium material, and fieldwork, we report 48 species of Hypoxylaceae from the Yucatan Peninsula, belonging to seven genera: *Annulohypoxylon* Y.M. Ju, J.D. Rogers & H.M. Hsieh (6 spp.), *Daldinia* Ces. & De Not. (8 spp.), *Entonaema* (2 spp.), *Hypomontagnella* Sir, L. Wendt & C. Lamb. (2 spp.), *Hypoxylon* (23 spp.), *Phylacia* (6 spp.), and *Pyrenopolyporus* Lloyd (1 sp.) (Table 2).

Table 2. Species of Hypoxylaceae known from the Yucatan Peninsula, Mexico.

Species	Literature
Annulohypoxylon archeri (Berk.)Y.M. Ju, J.D. Rogers & H.M. Hsieh	Medel et al. 1999; Medel 2002
A. fusisporum P. Reyes, Pinzón, R. Valenz. & Raymundo	Reyes et al. 2024
A. moriforme (Henn.) Y.M. Ju, J.D. Rogers & H.M. Hsieh	San Martín et al. 1999
A. nitens (Ces.) Y.M. Ju, J.D. Rogers & H.M. Hsieh	San Martín et al. 1999; García-Martínez et al. 2021; Raymundo et al. 2021
A. purpureonitens (Y.M. Ju & J.D. Rogers) Y.M. Ju, J.D. Rogers & H.M. Hsieh	Raymundo et al. 2021
A. stygium (Lév.) Y.M. Ju, J.D. Rogers & H.M. Hsieh	San Martín et al. 1999
Daldinia brachysperma F. San Martín, Y.M. Ju & J.D. Rogers	Ju et al. 1997; Barbosa-Reséndiz et al. 2020
D. caldariorum Henn.	Barbosa-Reséndiz et al. 2020
D. childiae J.D. Rogers & Y.M. Ju	Barbosa-Reséndiz et al. 2020
D. clavata Henn.	This study
D. cuprea Starbäck	Barbosa-Reséndiz et al. 2020
D. eschscholtzii (Ehrenb.) Rehm	Ju et al. 1997 Barbosa-Reséndiz et al. 2020; Raymundo et al. 2021
D. placentiformis (Berk. & M.A. Curtis) Theiss.	San Martín et al. 1999
D. vernicosa Ces. & De Not.	Barbosa-Reséndiz et al. 2020
Entonaema globosum R. Heim	San Martín and Lavin 1997
E. liquescens Möller	San Martín and Lavin 1997
Hypomontagnella monticulosa (Mont.) Sir, L. Wendt & C. Lambert	San Martín et al. 1999
H. rubigineoareolata (Rehm) Sir, L. Wendt & C. Lambert	Medel et al. 1989
Hypoxylon aeruginosum J.H. Mill.	San Martín et al. 1999
H. anthochroum Berk. & Broome	San Martín et al. 1999; Reyes et al. 2020
H. bellicolor Cedeño-Sanchez, L. Wendt & L.C. Mejía	Reyes et al. 2024
H. cinnabarinum (Henn.) Y.M. Ju & J.D. Rogers	San Martín et al. 1999; Reyes et al. 2020; Raymundo et al. 2021
H. crocopeplum Berk. & M.A. Curtis	San Martín et al. 1999
H. dieckmannii Theiss.	San Martín et al. 1999
H. duranii J.D. Rogers	San Martín et al. 1999; Raymundo et al. 2021
H. erythrostroma J.H. Mill.	San Martín et al. 1999; Reyes et al. 2020; Raymundo et al. 2021
H. fendleri Berk. ex Cooke	San Martín et al. 1999
H. haematostroma Mont.	San Martín et al. 1999; Reyes et al. 2020; Raymundo et al. 2021
H. hypomiltum Mont.	Guzmán 1983
H. investiens (Schwein.) M.A. Curtis	San Martín et al. 1999; Reyes et al. 2020; Raymundo et al. 2021
H. jaklitschii Sir & Kuhnert	Reyes et al. 2020; Raymundo et al. 2021
H. lenormandii Berk. & M.A. Curtis	San Martín et al. 1999; Reyes et al. 2020; Raymundo et al. 2021
H. lividipigmentum F. San Martín, Y.M. Ju & J.D. Rogers	San Martín et al. 1999; Reyes et al. 2020
H. macrocarpum Pouzar	San Martín et al. 1999
H. olivicolor F. San Martín, Y.M. Ju & J.D. Rogers	San Martín et al. 1999
H. perforatum (Schwein.) Fr.	Reyes et al. 2020; Raymundo et al. 2021

Species	Literature
H. rickii Y.M. Ju & J.D. Rogers	Reyes et al. 2020; Raymundo et al. 2021
Hypoxylon rubiginosum (Pers.) Fr.	Guzmán 1983; Medel 2002.
H. subgilvum Berk. & Broome	San Martín et al. 1999; Reyes et al. 2020; Raymundo et al. 2021
H. subrutilum Starbäck	San Martín et al. 1999
H. xmatkuilense P. Reyes, Pinzón, R. Valenz. & Raymundo	Reyes et al. 2024
Phylacia bomba (Mont.) Pat.	Medel et al. 2006
P. globosa Lév.	Medel et al. 2006
P. poculiformis (Kunze) Mont.	Medel et al. 2006
P. sagrana (Mont.) Mont.	Medel et al. 2006
P. surinamensis (Berk.) Dennis	This study
P. turbinata (Berk.) Dennis	Medel et al. 2006
Pyrenopolyporus hunteri Lloyd	San Martín et al. 1999

***Annulohypoxylon fusisporum* P. Reyes, Pinzón, R. Valenzuela & T. Raymundo**
Figure 2A–C

Specimens examined. MEXICO – Quintana Roo • Estación Experimental Bacalar del Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias; 18°47'07.75"N, 088°29'03.91"W; 10.III.2023; P. Reyes leg.; UADY 83.

Description. Stromata effused-pulvinate, 20–70 mm long × 20–30 mm wide × 1 mm thick, surface dark brown to black inconspicuous perithecial mounds up to ¼ exposed dark brown to black granules beneath surface (Figure 2A), KOH-extractable pigments Grayish Green (50) changing to Dull Green (70) after 1 minute (Figure 2B), perithecia 0.7–0.8 mm diam, spherical, conical- papillate ostioles surrounded with a truncatum type disc 0.2–0.25 mm diam; asci 8–spored cylindrical, the spore bearing parts 60–75 µm long × 5–7 µm wide, stipes 20–45 µm long, with amyloid, discoid apical apparatus, 1–2 µm high × 2 µm wide; ascospores 10–12 × 4–5 µm, unicellular, fusiform with narrowly rounded ends, with faint, straight germ slit along the spore on the convex side, light brown, perispore dehiscent 10% KOH (Figure 2C).

Host. Growing on rotten wood of *Brosimum alicastrum* Sw. in evergreen forest.

Distribution. In Mexico it is known from Quintana Roo (Reyes et al. 2024).

Notes. Similar to *A. subeffusum* (Speg.) Hladki & A.I. Romero (Hladki and Romero 2009) due to the color and shape of the stromata and the grayish-olive pigments, however the ascospores of this species are smaller 7–10 × 3–3.8 µm and the perispore is indehiscent. With *A. leptascum* (Speg.) Y.M. Ju, J.D. Rogers & H.M. Hsieh it shares the spore shape, but not the length of the germ slit, which is short, and the pigments are olivaceous not changing after 1 minute of contact with 10% KOH.

***Annulohypoxylon nitens* (Ces.) Y.M. Ju, J.D. Rogers & H.M. Hsieh**, Mycologia 97 (4): 861 (2005)
Figure 2D–F

Specimens examined. MEXICO — Quintana Roo • Zona Arqueológica San Gervasio; 20°29'58.02"N, 086°50'37.88''W; 15.X.2019; T. Raymundo leg.; ENCB 8302 • Estación Experimental Bacalar del Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias; 18°47'07.75"N, 088°29'03.91"W; 10.III.2023; P. Reyes leg.; UADY 78, 90, 106, 114, 122 • Ejido Tres Garantías; 18°13'24.65"N, 089°03'25.65"W; 11.III.2023; P. Reyes leg.; UADY 106 — Yucatán • municipio de Tekax; 20°03'33.20"N, 089°08'35.61"W;15.V.22; P. Reyes leg.; UADY 21, 27, 29, 30, 38.

Description. Stromata effused-pulvinate, 10–70 mm long × 5–20 mm wide, with evident perithecial mounds; shiny black surface at maturity (Figure 2D); black granules immediately beneath the surface; KOH-extractable pigments Olivaceous (48) (Figure 2E); perithecia obovoid to globose 0.3–0.8 mm diam, ostioles conical-papillated, surrounded by a bovei-type disc 0.1–0.3 mm diam; asci 8-spored, cylindrical, 100–150 µm total length × 6–6.5 µm wide, amyloid; ascospores light brown, ellipsoid, inequilateral with rounded ends, 8–9 × 3–4 µm; straight germ slit on spore-length on the convex side; perispore dehiscent in 10% KOH (Figure 2F).

Host. Growing on rotten wood in *Coccoloba cozumelensis* Hemsl., *Hampea trilobata* Standl., *Semialarium mexicanum* (Miers) Mennega, *Lysiloma latisiliquum* (L.) Benth., *Neomillspaughia emarginata* (H. Gross) S.F Blake in subdeciduous forest; in *Brosimum alicastrum* and *Coccoloba cozumelensis* in subevergreen forest.

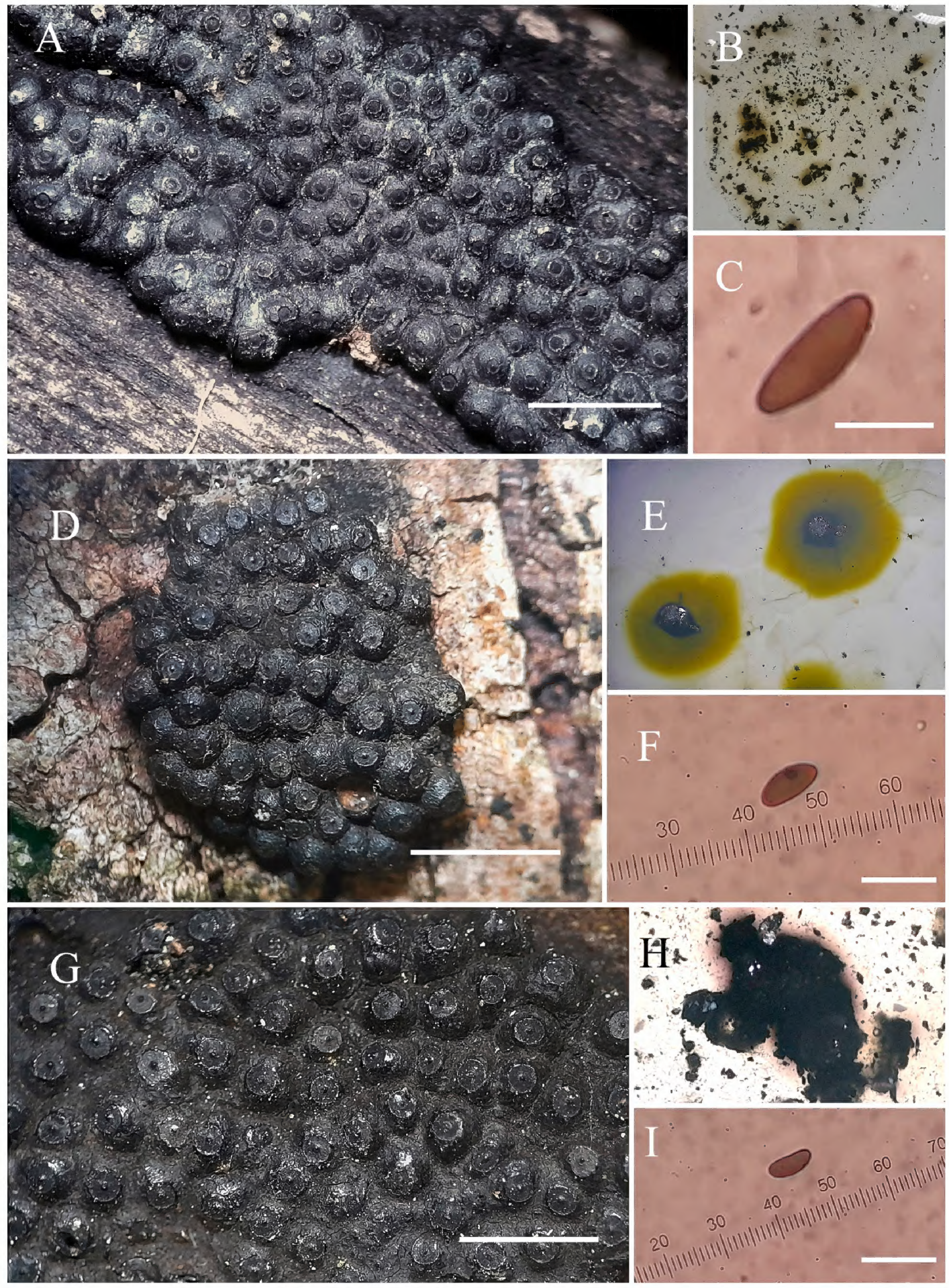

Figure 2. Stromata, KOH-extractable pigments and ascospores. **A–C.** *Annulohypoxylon fusisporum*. **D–F.** *A. nitens*. **G–I.** *A. purpureonitens*. Scale bars: A, D, G = 5 mm; C, F, I = 10 µm.

Distribution. Argentina, Indonesia, Puerto Rico (Ju and Rogers 1996). In Mexico it is known from Chiapas, Tamaulipas (San Martín et al. 1999), Oaxaca (Raymundo et al. 2014) and Quintana Roo (García-Martínez et al. 2021).

Notes. Shares the black effused-pulvinate stromata and the bovei-type ostiolar discs with *A. purpureonitens*, however this species has violet-vinaceous KOH-extractable pigments.

***Annulohypoxylon purpureonitens* (Y.M. Ju & J.D. Rogers) Y.M. Ju, J.D. Rogers & H.M. Hsieh,** Mycologia 97(4): 861 (2005)
Figure 2G–I

Specimens examined. MEXICO — Quintana Roo • Estación Experimental Bacalar del Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias; 18°47'07.75"N, 088°29'03.91"W; 10.III.2023; P. Reyes leg.; UADY 113,116.

Description. Stromata effused-pulvinate, 10–30 mm long × 10–20 mm wide, with shiny black surface with evident perithecial mounds (Figure 2G), with black granules immediately beneath the surface; KOH-extractable pigments Livid Purple (81) (Figure 2H); perithecia spherical 0.5–0.9 mm diam, ostioles conical-papillated with bovei-type discs 0.4 mm diam; asci 8-spored, cylindrical 90–130 µm total length × 6–7 µm wide, amy-

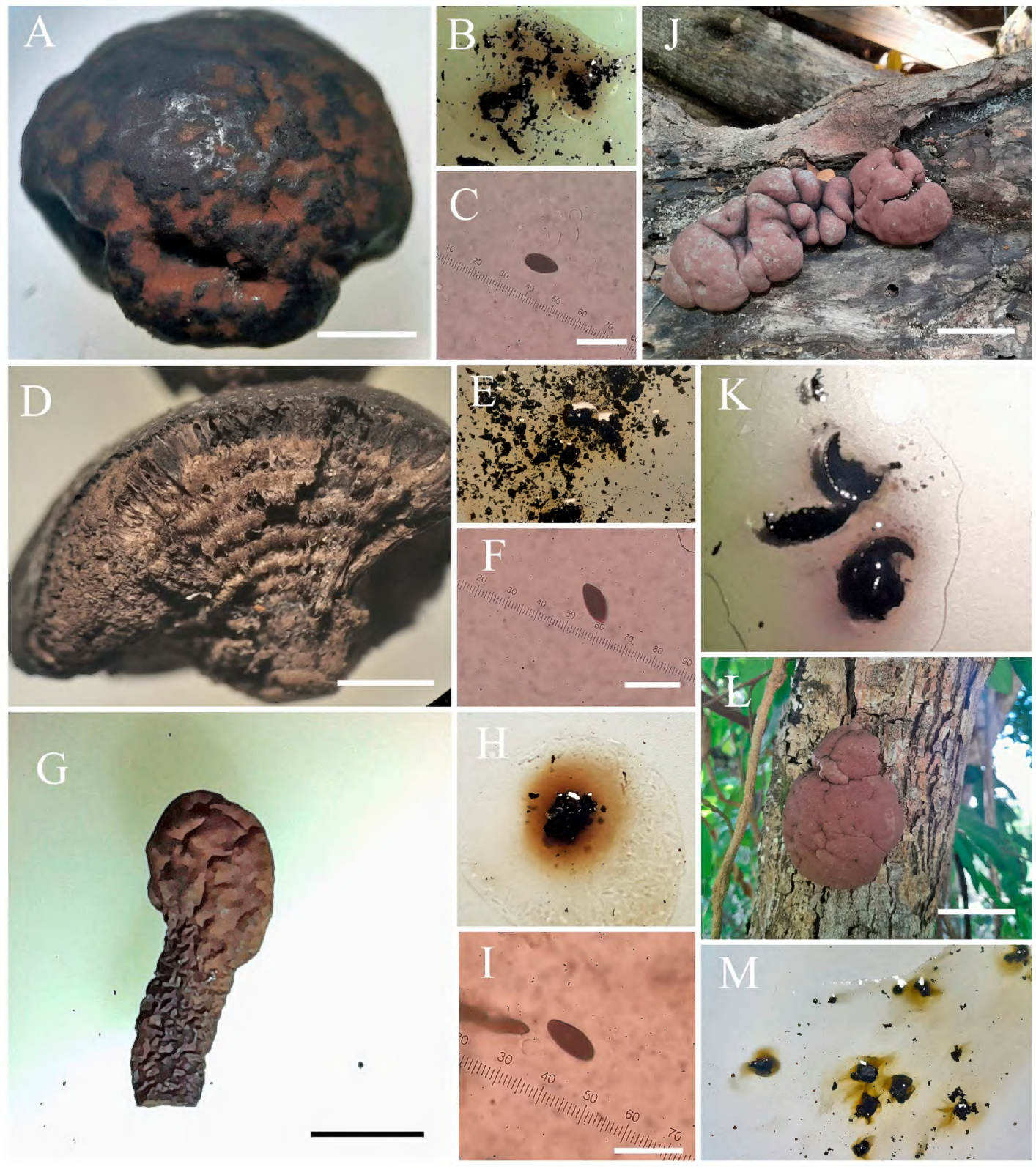

Figure 3. Stromata, KOH-extractable pigments, ascospores. **A–C.** *Daldinia caldariorum*. **D–F.** *D. childiae*. **G–I.** *D. clavata*. **J, K.** *D. eschscholtzii*. **L, M.** *D. placentiformis*. Scale bars: A, D, G, J, L = 5 mm; C, F, I = 10 µm.

loid; ascospores light brown, unicellular, ellipsoid, inequilateral, broadly rounded ends, 7–8 × 3–4 µm, germ slit straight on spore-length on the convex side, perispore dehiscent in 10% KOH (Figure 2I).

Host. Growing on rotten wood in subevergreen forest.

Distribution. Argentina, Brazil (Ju and Rogers 1996). In Mexico it is known from Chiapas (San Martín et al. 1999).

Notes. Shares the effused-pulvinate stromata and the bovei-type ostiolar discs with *A. nitens*, however this species has olivaceous KOH-extractable pigments.

***Daldinia caldariorum* Henn.**, Verhandlungen des Botanischen Vereins der Provinz Brandenburg 40: 158 (1898)
Figure 3A–C

Specimens examined. MEXICO — **Yucatán** • San Antonio Cinta, municipio Mérida; 20°57'27.66"N, 089°36'18.17"W; 8.I.1996; E. Sosa leg.; UADY 37 • comisaría de Xmatkuil, municipio de Mérida; 20°51'53.61"N, 089°37'18.40"W; 15.I.2005; I. Miranda leg.; UADY 4.

Description. Stromata turbinate to depressed-spherical, 20–70 × 30–42 mm, surface corrugated, with brown-ferruginous (Figure 3A) granules brown immediately beneath the surface; KOH-extractable pigments Vinaceous Purple (101) (Figure 3B); perithecia ovoid 0.5–0.8 × 0.2–0.5 mm with discrete or slightly papillated ostioles; asci 8-spored 130–155 µm total length × 6–7 µm wide, amyloid; ascospores 12–18 × 6–8 µm, ellipsoid, slightly inequilateral to equilateral, dark brown with broadly rounded ends, germ slit straight to slightly sigmoid on the flattened side, perispore dehiscent in 10% KOH (Figure 3C).

Host. Growing on rotten wood in deciduous forest.

Distribution. Cosmopolitan (Stadler et. al. 2014). In Mexico it is known from Chiapas (Ju et al. 1997), Oaxaca (Raymundo et al. 2014), Quintana Roo (Barbosa-Reséndiz et al. 2020).

Notes. Shares the depressed-spherical stromata and purple-vinaceous KOH-extractable pigments with *D. eschscholtzii*, although this species has the germ slit on the convex side.

***Daldinia childiae* J.D. Rogers & Y.M. Ju**, Mycotaxon 72: 512 (1999)
Figure 3D–F

Specimens examined. MEXICO — **Yucatán** • Mérida; 20°57'27.66"N, 089°36'18.17"W; 21.I.1998; A. Escalante leg.; UADY 30; • ibid.; 17.I.2006; G. Rivas leg.; UADY 4 • Dzoyaxché; 20°47'15.98"N, 089°35'27.66"W; 13.XII.2000; A. Zapata leg.; UADY 5 • comisaría Xmatkuil; 20°51'53.61"N, 089°37'18.40"W; 14.XI.2018; Y. Dzib leg.; UADY 3.

Description. Stromata depressed-spherical, 5-50 × 8–50 mm, surface smooth Vinaceous Purple (101) to black, when matures it becomes opaque; sessile (Figure 3D), KOH-extractable pigments Hazel (88) (Figure 3E), perithecia ovoid to lanceolate 0.7–1.5 × 0.3–0.5 mm with slightly papillated ostioles; asci 8-spored 170–200 µm total length × 8–10 µm wide, cylindrical, amyloid; ascospores 12–16 × 5.5–7.5 µm, ellipsoid, inequilateral, brown to dark brown, rounded ends, germ slit straight to slightly sigmoid, perispore dehiscent in 10% KOH (Figure 3F).

Host. Growing on rotten wood in flooded forest.

Distribution. Common in warm climates of the United States of America (Stadler et al. 2014). In Mexico it is known from Campeche, Chiapas, Durango, Estado de México, Guerrero, Jalisco, Mexico City, Morelos, Nayarit, Nuevo León, Oaxaca, Puebla, Querétaro, Quintana Roo, San Luis Potosí, Sonora, Tabasco, Tamaulipas, Veracruz, Yucatán (San Martín and Rogers 2005; Barbosa-Reséndiz et al. 2020).

Notes. Shares the stromata shape with *D. concentrica* (Bolton) Ces. & De Not., however this species has purple KOH-extractable pigments and it is distributed in regions with temperate climates.

***Daldinia clavata* Henn.**, Hedwigia 41: 14 (1902)
Figure 3G–I

Specimens examined. MEXICO — **Yucatán** • municipio de Mérida; 20°57'27.66"N, 089°36'18.17"W; J. Pinzón leg.; UADY F117.

Description. Stromata cylindrical to claviform, 25–45 × 10–55 mm, surface smooth Sepia (63) (Figure 3G), with opaque brown granules; subsessile or with stipes 15–20 × 5–8 mm; KOH-extractable pigments Dark Purple (36) or Sepia (63) (Figure 3H); perithecia ovoid 0.6-1 × 0.3–0.5 mm with slightly papillated ostioles; asci 8-spored 130–170 µm total length × 6–7 µm wide, uniseriate, amyloid; ascospores 8–12 × 4–5 µm, ellipsoid, inequilateral, brown to dark brown, narrowly rounded ends, germ slit straight on convex side, perispore dehiscent in 10% KOH (Figure 3I).

Host. Growing on rotten wood in deciduous forest.

Distribution. Pantropical (Ju et al. 1997; Stadler et al. 2014). In Mexico it is known from Tamaulipas (Ju et al. 1997; San Martín and Rogers 2005) and Veracruz (Child 1932; Stadler et al. 2014); Hidalgo, Estado de México, Oaxaca (Barbosa-Reséndiz et al. 2020).

Notes. Has great resemblance to *D. albozonata* Lloyd due to the claviform stromata with concentric rings, however this species has smaller spores, averaging 7–9 × 3–4 µm.

***Daldinia eschscholtzii* (Ehrenb.) Rehm**, Ann. Mycol. 2 (2): 175 (1904)
Figure 3J, K

Specimens examined. MEXICO — **Quintana Roo** • Estación Experimental Bacalar del Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias; 18°47'7.75"N, 088°29'3.91"W; 10.III.2023; P. Reyes leg.; UADY 151, 152 — **Yucatán** • Zona Arqueológica Dzibilchaltún; 21°05'55.40"N, 089°35'53.55"W; 8.III.1991; H. Cemé leg.; UADY 176 • ibid.; 31.V.2006; G. Cetz leg.; UADY 4,5 • Euan, municipio Tixkokob; 20°59'55.12"N, 089°20'25.76"W; 9.I.2005; G. Alonzo leg.; UADY 2 • comisaría de Xmatkuil; 20°51'53.61"N, 089°37'18.40"W; 9.XII.1992; M. Nabté leg.; UADY 15 • ibid.; 19.I.1998; M. González leg.; UADY 15 • ibid.; 22.XI.1999; C. González leg.; UADY 4 • ibid.; 07.XII.2001; J. Parra leg.; UADY 1 • ibid.; J. Traconis leg.; UADY 3 • ibid.; 16.I.2002; S. Navarrete leg.; UADY 3 • ibid.; 14.I.2005; T. Cervera leg.; UADY 2 • ibid.; A. Sánchez leg.; UADY 5 • ibid.; 3.XII.2006; E. Baas leg.; UADY 9 • ibid.;11.XII.2006; R. Castillo leg.; UADY 1 • ibid.; 7.XII.2007; D. Franco leg.; UADY 5 • ibid.; 11.XII. 2007; B. Gurz leg.; UADY 1 • municipio de Mérida; 20°57'27.66"N, 089°36'18.17"W; 20.X.1999; A. Magaña leg.; UADY 7 • ibid.; 2.XII.1999; M. Ferrer leg.; UADY 13 • ibid.; 3.XII.2006; D. Poot leg.; UADY 2 • ibid.; 27.XI.2006; T. Ramírez leg.; UADY 8 • ibid.; 8.I.2006; J. Rivas leg.; UADY 1 • ibid.; 16.XII.2007; G. Estrella leg.; UADY 49 • ibid.; 21.IX.2022; P. Reyes leg.; UADY 42 • municipio de Kikil; 21°11'27.42"N, 088°10'4.07"W; 25.X.1993; J. Narváez leg.; UADY 10 • municipio de Cuzamá; 20°44'37.43"N, 089°20'47.37"W; 6.XI.1996; I. Ortegón leg.; UADY 12 • municipio de Yaxcabá; 20°32'52.57"N, 088°49'39.73"W; 28.X.1999; N. Cárdenas leg.; UADY 3 • ibid.;11.I.2006; R. Sansores leg.; UADY 5.

Description. Stromata placentiform, semiglobose, 10–70 × 10–65 mm, surface smooth, vinaceous brown to black at maturity, grayish-wine when young, sessile to substipitate (Figure 3J); KOH-extractable pigments

Dark Purple (36) (Figure 3K); perithecia lanceolate 0.9–1.8 × 0.3–0.6 mm with inconspicuous ostioles; asci 8-spored 160–210 µm total length × 7–10 µm wide, amyloid; ascospores 10–14 × 5–6.5 µm, ellipsoid, inequilateral, dark brown, with narrowly rounded ends, germ slit straight on the convex side, perispore dehiscent in 10% KOH.

Host. Growing on rotten wood of *Piscidia piscipula* (L.) Sarg. in deciduous forest; *Brosimum alicastrum* and *Trichilia minutiflora* Standl. in subevergreen forest.

Distribution. Pantropical (Stadler et al. 2014). In Mexico it is known from Campeche, Oaxaca, Quintana Roo, Tamaulipas (Ju et al. 1997), Chiapas, Jalisco, Nayarit (Stadler et al. 2014), Veracruz (Child 1932); Colima, Estado de México, Guerrero, Morelos, Nuevo León, Puebla, Querétaro, San Luis Potosí, Sinaloa, Sonora, Tabasco, Yucatán, Zacatecas (Barbosa-Reséndiz et al. 2020).

Notes. It is the taxonomic entity with the highest frequency and broadest distribution in tropical and dry regions of Mexico (Barbosa-Reséndiz et al. 2020). Differs from *D. concentrica* by having placentiform stromata and its distribution in warmer areas.

***Daldinia placentiformis* (Berk. & M.A. Curtis) Theiss.**, Annales Mycologici 7 (1): 4 (1909)
Figure 3L, M

Specimens examined. MEXICO — **Yucatán** • Dzemul–Xtampu highway; 21°17'32.88"N, 089°19'33.28"W; 9.II.2023; P. Reyes leg.; UADY 52 • east side of the cemetery, comisaría Xmatkuil; 20°52'06.63"N, 089°37'05.63"W; 22.X.2024; P. Reyes leg.; UADY 120.

Description. Stromata placentiform to hemispherical, 20–90 mm diam, surface Brown Vinaceous (84) velvety (Figure 3L), when cutting release white aqueous substance, KOH-extractable pigments Dull Green (70) (Figure 3M); perithecia tubular to lanceolate 1–2 × 0.4–0.5 mm, ostioles umbilicate; asci 8-spored 120–160 µm total length × 8.5–11 µm wide, amyloid; ascospores 12–16 × 5–7 µm ellipsoid, inequilateral, dark brown, narrowly rounded ends, germ slit straight in spore-length on convex side, perispore dehiscent in 10% KOH.

Host. Growing on rotten wood of *Pithecellobium unguis-cati* (L.) Benth. in deciduous and evergreen forest.

Distribution. Neotropics (Stadler et al. 2014). In Mexico it is known from Campeche, Jalisco, Nuevo León, Tamaulipas (San Martín et al. 1999).

Notes. A close taxon is *Daldinia eschscholtzii*, which in contrast has a carbonaceous consistency and purplish pigments.

***Entonaema liquescens* Möller,** Botanische Mittheilungen aus den Tropen 9: 307 (1901)
Figure 4A–C

Specimens examined. MEXICO — **Campeche** • El Ramonal, Calakmul; 18°19'47.21"N, 089°49'02.28"W; 9.II.2021; T. Raymundo leg.; ENCB 8489 • ibid.; R. Valenzuela leg.; ENCB 19274.

Description. Stromata globose to irregular, sessile, 3–18 cm long × 2–15 cm wide × 1.5–5.5 cm high, surface Pale Luteous (11) to Peach (4) inside filled with a gelatinous substance, then hollow, leathery consistency (Figure 4A), KOH-extractable pigments Luteous (12) (Figure 4B); perithecia globose, 0.4–0.7 mm diam, ostioles umbilicate to slightly papillate; asci 8-spored in an oblique or biseriate series, cylindrical, 90–110 total length × 6–7 µm wide, with discoid to cubic amyloid apical apparatus; ascospores 10–12 × 5.5–7 µm brown, ellipsoid to slightly inequilateral, with two guttules, rounded ends, germ slit straight less than spore-length, perispore indehiscent in 10% KOH (Figure 4C).

Host. Growing on rotten wood in subevergreen forest.

Distribution. Africa, America, Asia (Rogers 1982). In Mexico it is known from Jalisco and Tamaulipas (San Martín and Lavin 1997).

Notes. Related to *E. globosum*, which has KOH-extractable orange-reddish pigments and smaller spores (8–10 x 5–6 µm).

***Hypomontagnella monticulosa* (Mont.) Sir, L. Wendt & C. Lamb. 2019**
Figure 4D–F

Specimens examined. MEXICO — **Campeche** • Champotón–Campeche highway; 18°48'37.69"N, 091°11' 53.78"W; 19.I.2018; P. Reyes leg.; ENCB 134 — **Quintana Roo** • Cabañas Chaktunik; 18°28'40.17"N, 088°49'59.39"W; 8.II.2022; T. Raymundo leg.; ENCB 8476 • Estación Experimental Bacalar del Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias; 18°47'7.75"N, 088°29'03.91"W; 10.III.2023; P. Reyes leg.; UADY 77, 79, 87, 88, 92, 107, 109, 112 • camino a Tres Garantías; 18°17'44.60"N, 089°01'36.68"W; 11.III.2023; P. Reyes leg.; UADY 70, 71 • ejido Tres Garantías; 18°13'24.65"N, 089°3'25.65"W; 11.III.2023; P. Reyes leg.; UADY 70, 71, 102, 103, 105 • Ecoparque Tres Garantías; 18°11'34.48"N, 089°00'09.41"W; 12.III.2023; P. Reyes leg.; UADY 98, 100 — **Yucatán** • Dzibilchaltún; 21°05'55.40"N, 089°35'53.55"W; 19.III.1991; H. Cemé leg.; UADY 184 • Laguna Xnuc; 20°39'11.46"N,

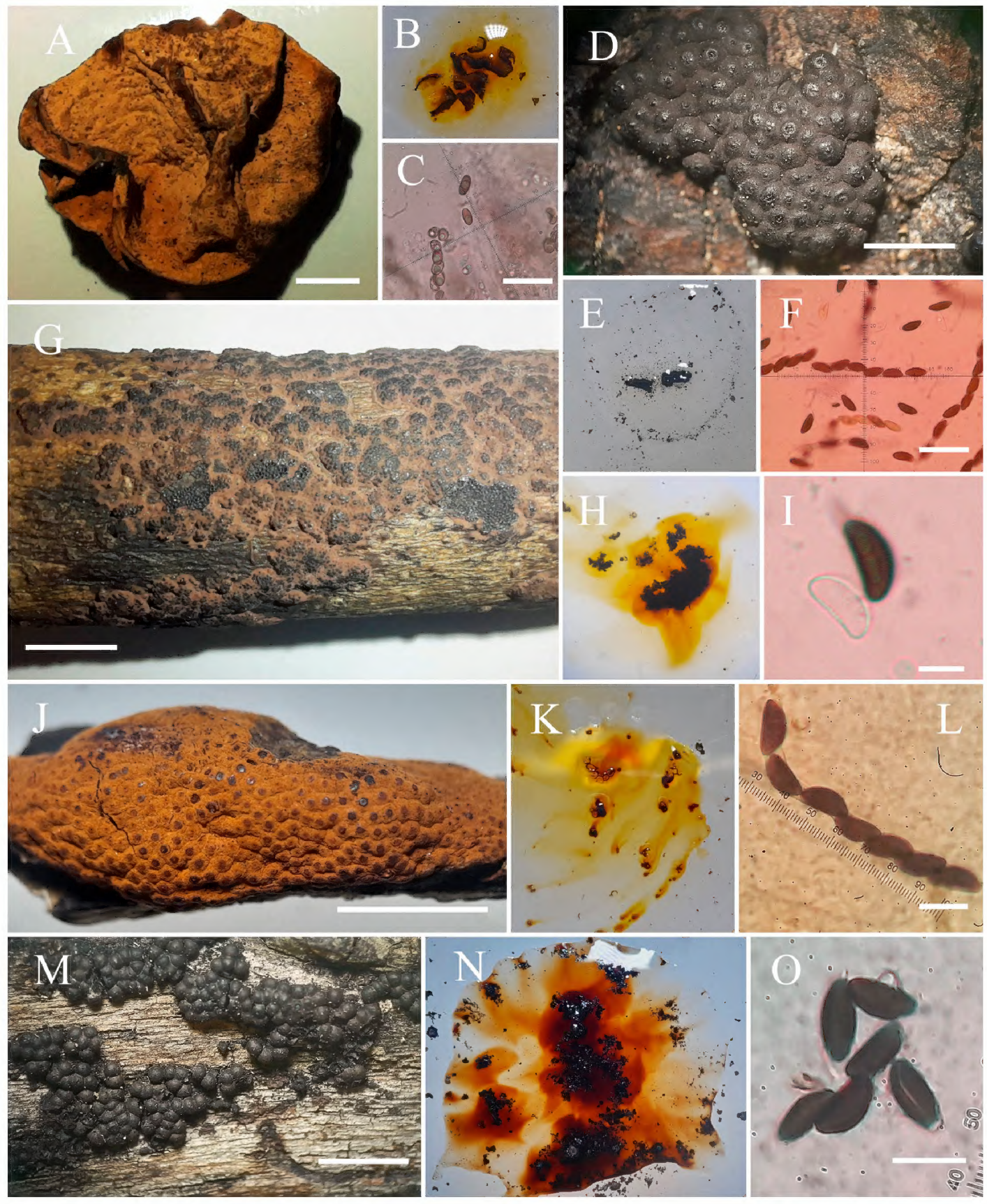

Figure 4. Stromata, KOH-extractable pigments, ascospores. **A–C.** *Entonaema liquescens*. **D–F.** *Hypomontagnella monticulosa*. **G–I.** *Hypoxylon bellicolor*. **J–L.** *H. haematostroma*. **M–O.** *H. jaklistchii*. Scale bars: A, D, G, J, M = 10 mm; C, F, I, L, O = 10 µm.

089°13′02.34″W; 20.II.2006; L. Ancona leg.; UADY 26 • Nohalal; 20°12′28.42″N, 089°17′06.29″W; 22.VII.2008; P. Garma leg.; UADY 11 • Tekax; 20°03′33.20″N, 089°08′35.61″W; 17.V.2022; P. Reyes leg.; UADY 32 • Parque Ecológico del Sur, municipio de Mérida; 20°53′50.62″N, 089°39′34.18″W; 21.IX.2022; P. Reyes leg.; UADY 44 • Dzemul–Xtampú highway; 21°17′32.88″N, 089°19′33.28″W; 9.II.2023; P. Reyes leg.; UADY 55, 64 • east side of the cemetery, comisaría Xmatkuil; 20°52′06.63″N, 089°37′05.63″W; 11.VII.2023; P. Reyes leg.; UADY 120.

Description. Stromata effused-pulvinate, 6–30 mm × 4–11 mm, surface Sepia (63) when young and black at maturity (Figure 4D); without KOH-extractable pigments (Figure 4E); perithecia ovoid 0.3–0.4 × 0.2–0.3 mm, ostioles papillate; asci 8-spored 90–110 µm total length × 4–6 µm wide, cylindrical, uniseriate, amyloid; ascospores 8–10 × 4–5 µm, dark brown, inequilateral, ellipsoids, germ slit slightly sigmoid on the convex side, perispore dehiscent in 10% KOH (Figure 4F).

Host. Growing on rotten wood of *Senna atomaria* (L.) H.S. Irwin & Barneby, *Pithecellobium unguis-cati* in deciduous forest; on *Coccoloba cozumelensis* in flooded forest; on *Senegalia gaumeri* (S.F. Blake) Britton & Rose in subdeciduous forest; on *Trichilia minutiflora, Brosimum alicastrum, Alseis yucatanensis* Standl., *Brosimum alicastrum, Piscidia piscipula* in subevergreen forest.

Distribution. Colombia, Philippines, Sri Lanka, Taiwan (Ju and Rogers 1996), Papua New Guinea (Van der Gucht et al. 1997); Hawaii (Rogers and Ju 2012); Brazil (Cruz and Cortez 2015), Martinique (Fournier et al. 2015). In Mexico it is known from Chiapas, Michoacán, Nuevo León (San Martín et al. 1999).

Notes. Unique within the genus *Hypomontagnella* due to possession of a sigmoid germ slit.

***Hypoxylon bellicolor* Cedeño-Sanchez, L. Wendt & L.C. Mejía** Mycosphere 11(1): 1464 (2020)
Figure 4G–I

Specimens examined. MEXICO — **Campeche** • Champotón–Campeche highway; 18°48'37.69"N, 091°11'53.78"W; 19.I.2018; P. Reyes leg.; ENCB 145 — **Quintana Roo** • Centro de Conservación y Educación Ambiental, Cozumel; 20°28'52.82"N, 086°57'39.80"W; 20.I.2018; R. Valenzuela leg.; ENCB 17942 — **Yucatán** • east side of the cemetery, comisaría Xmatkuil; 20°52'06.63"N, 089°37'05.63"W; 15.X.2021; P. Reyes leg.; UADY 7, 9 • Parque Ecológico del Sur, Mérida; 20°53'50.62"N, 089°39'34.18"W; 21.IX.2022, P. Reyes leg.; UADY 45 • Reserva de la Biosfera Ría Celestún; 20°49'47.57"N, 090°24'18.41"W; 29.X.2022; P. Reyes leg.; UADY 55.

Description. Stromata effused-pulvinate, 20–90 mm long × 10–30 mm wide, Rust (39) pruinose surface with rust granules beneath the surface (Figure 4G), KOH-extractable pigments Luteous (12) (Figure 4H); perithecia ovoid, umbilicate ostioles; asci 8-spored cylindrical, the spore bearing part 40–80 µm long × 5–6 µm wide, stipes 30–35 µm long, with amyloid, discoid apical apparatus 2–3 µm high × 2 µm wide; ascospores 10–12 µm long × 4–6 µm wide, with germ slit straight less than spore-length on the convex side, perispore dehiscent in 10% KOH with coil-like ornamentation (Figure 4I).

Host. Growing on dead wood of *Lysiloma latisiliquum*, *Lonchocarpus* Kunth sp. in deciduous forest; on dead wood of *Conocarpus erectus* L. in coastal dune vegetation.

Distribution. Panama (Cedeño-Sanchez et al. 2020). In Mexico, it is known from Campeche, Quintana Roo and Yucatán (Reyes et al. 2024).

Notes. Shares stromata color and yellow KOH-extractable pigments with *H. perforatum*, however this species is characterized by a white disc surrounding the ostioles (Ju and Rogers, 1996).

***Hypoxylon haematostroma* Mont.**, Ann. Sci. Nat., Bot. 17: 124 (1842)
Figure 4J–L

Specimens examined. MEXICO — **Quintana Roo** • vereda de la Fundación de Parques y Museos de Cozumel; 20°28'52.82"N, 086°57'39.80"W; 20.I.2018;T. Raymundo leg.; ENCB 7325 • Estación Experimental Bacalar del Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias; 18°47'7.75"N, 088°29'3.91"W; 10.III.2023; P. Reyes leg.; UADY 84 • ejido Tres Garantías; 18°13'24.65"N, 089°3'25.65"W; 11.III.2023;P. Reyes leg.; UADY 75 — **Yucatán** • Xpanil, municipio de Yaxcabá; 20°32'52.57"N, 088°49'39.73"W; 6.11.1996; A. Caamal leg.; UADY 4 • ibid.; 20.X.1999; A. Echeverría leg.; UADY 12 • ibid.; 28.X.1999; H. Cárdenas leg., UADY 3 • ibid.; 12.XII.2001; J. Cerón leg.; UADY 2 • Parque Estatal de Kabah; 20°14'35.12"N, 089°39'02.29"W; 16.XI.2007; J. Medrano leg.; UADY 70 • Mérida–Cancún highway; 20°44'23.24"N, 088°28'22.54"W; 19.I.2018; R. Valenzuela leg.; ENCB 17770.

Description. Stromata effused-flattened to pulvinate, 5–70 mm × 2–18 mm, surface chrome Orange (7), with orange granules beneath the surface (Figure 4J); KOH-extractable pigments Fulvuous (43), not changing after 1 minute of contact (Figure 4K); perithecia tubular 1.2–1.8 mm × 0.2–0.3 mm, ostioles umbilicate; asci 8-spored, 150–220 µm total length × 5–9 µm wide, cylindrical, uniseriate, amyloid; ascospores 13–18 × 7–8 µm, inequilateral ellipsoidal, dark brown, with rounded ends, germ slit straight, perispore dehiscent in 10% KOH (Figure 4L).

Host. Growing on rotten wood of *Vitex gaumeri* Greenm. in subdeciduous forest.

Distribution. Costa Rica, Cuba, Honduras, Indonesia, Nicaragua, Philippines, Sri Lanka, Taiwan, Venezuela (Ju and Rogers 1996), Papua New Guinea (Van der Gucht et al. 1997), Hawaii (Rogers and Ju 2012), Martinique (Fournier et al. 2015), Argentina (Sir et al. 2016). In Mexico it is known from Campeche, Chiapas, Colima, Jalisco, Morelos, Oaxaca, Quintana Roo, Tamaulipas, Veracruz, Yucatán (Guzmán-Dávalos et al. 1983; Ju and Rogers 1996; San Martín et al. 1999; Medel 2002; Raymundo et al. 2014; Reyes et al. 2020).

Notes. Shares the orange stromatal surface with *H. cinnabarinum, H. rickii, H. fendleri*; however the ascospores of *H. haematostroma* are the largest in the complex, averaging 13–18 × 7–8 µm.

***Hypoxylon jaklitschii* Sir & Kuhnert**, Fungal Diversity 71: 173 (2015)
Figure 4M–O

Specimens examined. MEXICO — **Campeche** • Champotón–Campeche highway; 18°48'37.69"N, 091°11'53.78"W; 19.I.2018; T. Raymundo leg.; ENCB 7240 — **Yucatán** • east side of the cemetery, comisaría Xmatkuil; 20°52'06.63"N, 089°37'05.63"W; 14.X.2021; P. Reyes leg.; UADY 5 • municipio de Tekax; 20°03'33.20"N, 089°8'35.61"W; 17.V.2022; P. Reyes leg.; UADY 28.

Description. Stromata globose to effused-pulvinate, 1–10 mm × 1–8 mm, surface Sepia (63) to dark brown (Figure 4M); KOH-extractable pigments Umber (9) to Dark Brick (66), not changing after 1 minute of contact (Figure 4N); perithecia 0.3–0.5 mm in diameter, conspicuous, spherical, ostioles umbilicate; asci 8-spored, 120–170 µm total length × 5–7 µm wide, cylindrical, uniseriate, amyloid; ascospores 9–12 × 4–5.5 µm, inequilateral ellipsoidal, dark brown, with sigmoid germ slit on spore-length on the convex side, perispore dehiscent in 10% KOH (Figure 4O).

Host. Growing on rotten wood of *Gymnopodium floribundum Rolfe* in deciduous forest, *Lysiloma latisiliquum* and *Semialarium mexicanum* in subdeciduous forest.

Distribution. Sri Lanka (Kuhnert et al. 2015). In Mexico it is known from Jalisco, Quintana Roo, Tamaulipas (Reyes et al. 2020).

Notes. *H. jaklitschii* was segregated from H. *lenormandii*, both of which have dark brown to sepia, glomerate stromata and dark vinaceous to dark brick KOH-extractable pigments, as the ascospores in the former species are smaller, 9.5–12 × 4–5.5 µm, larger in *H. lenormandii*, 11–13 × 4–6 µm.

***Hypoxylon lenormandii* Berk. & M.A. Curtis**, J. Linn. Soc., Bot. 10: 385 (1869)
Figure 5A–C

Specimens examined. MEXICO — Quintana Roo • Estación Experimental Bacalar del Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias; 18°47'7.75"N, 088°29'03.91"W; 10.III.2023; P. Reyes leg.; UADY 82, 86 – **Yucatán** • Mérida–Cancún highway; 20°44'23.24"N, 088°28'22.54"W; 19.I.2018; R. Valenzuela leg.; ENCB 17741.

Description. Stromata glomerate to effused-pulvinate, 0.6–0.7 mm diam, surface Grayish Sepia (106) or Brown Vinaceous (84) (Figure 5A); KOH-extractable Blood Colour (3) changing to Dark Vinaceous (82) after 1 minute of contact (Figure 5B);perithecia notably conspicuous 0.4–0.5 mm diam, ostioles umbilicate to slightly papillate; asci 8-spored 150–190 µm total length × 5–8 µm wide, cylindrical, uniseriate, amyloid; ascospores 11–15 × 4–6 µm, dark brown, inequilateral, ellipsoids, germ slit sigmoid on spore-length on the convex side, perispore dehiscent in 10% KOH (Figure 5C).

Host. Growing on rotten wood of *Ehretia tinifolia* L. and *Trichilia minutiflora* in deciduous forest.

Distribution. Cuba, Indonesia, Nicaragua, Paraguay, Sri Lanka, Tahiti, Taiwan (Ju and Rogers 1996), Papua New Guinea (Van der Gucht et al. 1997), Brazil (Cruz and Cortez 2015). In Mexico it is known from Campeche, Chiapas, Jalisco, Nayarit, Nuevo León, Oaxaca, Quintana Roo, Sinaloa, Sonora, Tamaulipas, Yucatán (Ju and Rogers 1996; San Martín et al. 1999; Medel 2002; Raymundo et al. 2014; Reyes et al. 2020).

Notes. Similar in morphology to *H. jaklitschii* which was segregated based on the ITS and beta-tubulin markers. *Hypoxylon jaklitschii* has smaller ascospores, 9–12 × 4–5.5 µm.

***Hypoxylon lividipigmentum* F. San Martín, Y.M. Ju & J.D. Rogers**, Mycologia Memoirs 20: 145 (1996)
Figure 5D–F

Specimens examined. MEXICO — Yucatán • Kanasín; 20°56'39.47"N, 089°33'48.67"W; 3.I.1998; L. Nabté leg.; UADY 28 • east side of the cemetery, comisaría Xmatkuil; 20°52'06.63"N, 089°37'05.63"W; 14.X.2021; P. Reyes leg.; UADY 1 • municipio de Tekax; 20°3'33.20"N, 089°8'35.61"W; 17.V.2022; P. Reyes leg.; UADY 22, 24 • Dzemul–Xtampú highway; 21°17'32.88"N, 089°19'33.28"W; 9.II.2023; P. Reyes leg.; UADY 57.

Description. Stromata effused-pulvinate, 10–60 mm × 3–10 mm, surface Chestnut (40), Brown Vinaceous (84) granules beneath the surface (Figure 5D); KOH-extractable pigments Dark Purple (36) not changing after one minute of contact (Figure 5E); perithecia spherical 0.2–0.4 mm ostioles umbilicate; asci 8-spored 135–160 µm total length × 6–7 µm wide, cylindrical uniseriate, amyloid; ascospores 10–15 × 4.5–6 µm, ellipsoid, inequilateral, dark brown, germ slit sigmoid on spore-length on the convex side, perispore dehiscent in 10% KOH (Figure 5F).

Host. Growing on rotten wood of *Lysiloma latisiliquum, Lonchocarpus rugosus* Benth., *Coccoloba cozumelensis* in subdeciduous forest; on *Diospyros anisandra* Blake and *Acacia* Mill. sp. in deciduous forest.

Distribution. Venezuela (Ju and Rogers, 1996), Argentina (Sir et al. 2016), Panama (Cedeño-Sanchez et al. 2023). In Mexico it is known from Oaxaca and Quintana Roo (San Martín et al. 1999), Jalisco (Sánchez-Jácome and Guzmán-Dávalos 2005), Sonora and Tamaulipas (Reyes et al. 2020).

Notes. Shares the chestnut stromatal surface and purplish KOH-extractable pigments with *H. lividicolor* Y.M. Ju & J.D. Rogers, although this species has smaller (11–12.5 µm) and narrower (4–4.5 µm) ascospores.

***Hypoxylon perforatum* (Schwein.) Fr.**, Summa Vegetabilium Scandinaviae 2: 384 (1849)
Figure 5G–I

Specimens examined. MEXICO — Campeche • Champotón–Campeche highway; 18°48'37.69"N, 091°11'53.78"W; 19.I.2018; R. Valenzuela leg.; ENCB 17885 — Yucatán • east side of the cemetery, comisaría Xmatkuil; 20°52'06.63"N, 089°37'05.63"W; 14.X.2021; P. Reyes leg.; UADY 6, 8.

Description. Stromata effused-pulvinate, 1–25 mm long × 1–10 mm wide, surface Dark Vinaceous (82) (Figure 5G); KOH-extractable pigments Amber (47) to Olivaceous (48) not changing after 1 minute of contact (Figure 5H); perithecia spherical 0.1–0.3 mm diam, umbilicate ostioles surrounded by a white disc; asci 8-spored, 80–130 µm total length × 5–6 µm wide, cylindrical, uniseriate, amyloid; ascospores 9–12 × 4-6 µm,

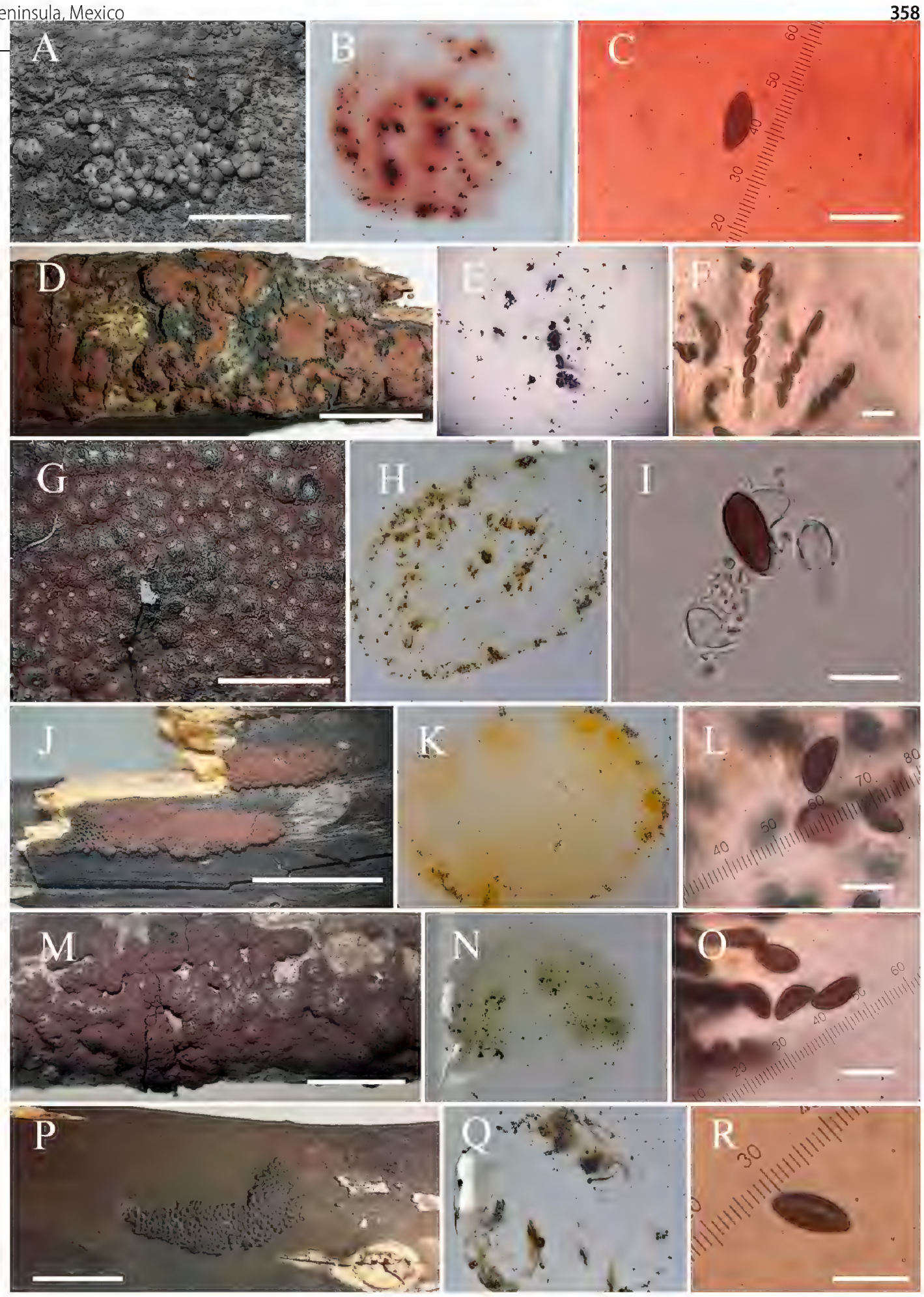

Figure 5. Stromata, KOH-extractable pigments, ascospores. **A–C.** *Hypoxylon lenormandii*. **D–F.** *H. lividipigmentum*. **G–I.** *H. perforatum*. **J–L.** *H. subgilvum*. **M–O.** *H. subrutilum*. **P–R.** *H. xmatkuilense*. Scale bars: A, D, G, J, M, P= 10 mm; C, F, I, L, O, R= 10 µm.

dark brown, ellipsoid, inequilateral, rounded ends, germ slit straight on spore-length, perispore dehiscent in 10% KOH (Figure 5I).

Host. Growing on rotten wood of *Randia longiloba* Hemsl. and *Lysiloma latisiliquum* in deciduous forest.

Distribution. Brazil, France, Alemania, India, Madagascar, New Zealand, Paraguay, Switzerland, Taiwan (Ju and Rogers 1996), Papua New Guinea (Van der Gucht et al. 1997); Hawaii (Rogers and Ju 2012), Argentina (Sir et al. 2016). In Mexico, it is known from Nuevo León (San Martín et al. 1999), Jalisco and Quintana Roo (Reyes et al. 2020; Raymundo et al. 2021).

Notes. Shares yellow or olivaceous KOH-extractable pigments with *H. anthochroum* and *H. bellicolor*, but distinguished by the presence of a white disc surrounding the ostioles.

***Hypoxylon subgilvum* Berk. & Broome**, J. Linn. Soc., Bot. 14 (73 & 74): 120 (1873)
Figure 5J–L

Specimens examined. MEXICO — Yucatán • Dzibilchaltún; 21°05'55.40"N, 089°35'53.55"W; 18.II.1991; H. Cemé leg.; UADY 133 • Nohalal; 20°12'28.42"N, 089°17'06.29"W; 26.VI.2008; P. Garma leg.; UADY 36 • Mérida–Cancún highway; 20°44'23.24"N, 088°28'22.54"W; 19.I.2018; R. Valenzuela leg.; ENCB 17765 • east side of the cemetery, comisaría Xmatkuil; 20°52'06.63"N, 089°37'05.63"W; 14.X.2021; P. Reyes leg.; UADY 10 • Tekax; 20°03'33.20"N, 089°08'35.61"W; 17.V.2022; P. Reyes leg.; UADY 20 • Reserva de la Biosfera Ría Celestún; 20°49'47.57"N, 090°24'18.41"W; 29.X.2022; P. Reyes leg.; UADY 49.

Description. Stromata effused-flattened to pulvinate, 10–33 mm long × 4–8 mm, smooth, surface Bay (6), orange granules beneath the surface (Figure 5J); KOH-extractable pigments Orange (7) to Saffron (10) not changing after 1 minute of contact (Figure 5K); perithecia conspicuous spherical to ovoid 0.2–0.6 mm diam, ostioles umbilicate; asci 8-spored, 90–150 µm total length × 4–7 µm wide, cylindrical, uniseriate, amyloid; ascospores 9–14 × 4–6.5 µm dark brown, inequilateral, ellipsoid, rounded ends, germ slit on spore-length, perispore dehiscent in 10% KOH (Figure 5L).

Host. Growing on rotten wood of *Neomillspaughia emarginata*, *Cenostigma gaumeri* (Greenm.) Gagnon & G.P. Lewis in subdeciduos forest, on *Pithecellobium keyense* Britton in coastal dune, on *Diospyros anisandra* in deciduous forest.

Distribution. Congo, India, Indonesia, Paraguay, South Africa, Taiwan, Venezuela (Ju and Rogers 1996), Papua New Guinea (Van der Gucht et al. 1997), Hawaii (Rogers and Ju 2012), Thailand (Vasilyeva et al. 2012), Brazil (Cruz and Cortez 2015), Martinique (Fournier et al. 2015), Argentina (Sir et al. 2016). In Mexico it is known from Tamaulipas and Campeche (San Martín et al. 1999), Jalisco and Quintana Roo (Reyes et al. 2020; Raymundo et al. 2021).

Notes. Similar to *H. calileguense* Sir, Kuhnert, Hladki & A.I. Romero due to the presence of orange KOH-extractable pigments and orange-yellowish granules beneath the surface, however this species has a pink stromatal surface and was segregated by Sir et al. (2016) based on the ITS and beta tubulin markers.

***Hypoxylon subrutilum* Starbäck**, Bihang til Kongliga Svenska Vetenskaps-Akademiens Handlingar 27 (9): 10 (1901)
Figure 5M–O

Specimens examined. MEXICO — **Yucatán** • Mérida; 20°57′27.66″N, 089°36′18.17″W; 19.II.1991; H. Cemé leg.; UADY 137 • Xmatkuil; 20°51′53.61″N, 089°37′18.40″W; 18.XII.1992; P. Saitra leg.; UADY 25 • Nohalal; 20°12′28.42″N, 089°17′06.29″W; 3.XII.1997; E. López leg.; UADY 13 • east side of the cemetery, comisaría Xmatkuil; 20°52′06.63″N, 089°37′05.63″W; 14.X.2021; P. Reyes leg.; UADY 11, 12 • Reserva de la Biosfera Ría Celestún; 20°49′47.57″N, 090°24′18.41″W; 29.X.2022; P. Reyes leg.; UADY 51 • carretera Dzemul–Xtampú; 21°17′32.88″N, 089°19′33.28″W; 9.II.2023; P. Reyes leg.; UADY 56, 58, 59, 60, 61, 63.

Description. Stromata glomerate to effused-pulvinate, 10–55 × 10–15 mm, surface Dark Brick (66) to Dark Vinaceous (82) (Figure 5M); KOH-extractable pigments Olivaceous (48) changing to sepia after 1 minute of contact (Figure 5N); perithecia spherical 0.2–0.4 mm diam, ostioles umbilicate; asci 8-spored, 110–130 µm total length × 3–4 µm wide, cylindrical, uniseriate, amyloid; ascospores 13–23 × 6–10 µm, dark brown, inequilateral ellipsoids, rounded ends, germ slit straight on spore-length, perispore dehiscent in 10% KOH (Figure 5O).

Host. Growing on rotten wood of *Coccoloba cozumelensis, Diospyros tetrasperma* Sw. in subdeciduous forest; *Vachellia pennatula* (Schltdl. & Cham.) Seigler & Ebinger; *Leucaena leucocephala* (Lam.) de Wit., *Lysiloma latisiliquum, Mimosa bahamensis* Benth., *Pithecellobium unguis-cati, Senna atomaria* in deciduous forest; *Pithecellobium keyense* in coastal dune.

Distribution. Bolivia, Brazil, Congo, India, Venezuela (Ju and Rogers 1996), Papua New Guinea (Van der Gucht et al. 1997), Hawaii (Rogers and Ju 2012); Argentina (Sir et al. 2016). In Mexico it is known from Quintana Roo and Tamaulipas (San Martín et al. 1999).

Notes. Has brown-vinaceous effused-pulvinate stromata and olive KOH-extractable pigments like *H. anthochroum*, but has smaller ascospores (10–12 × 4–5 µm).

***Hypoxylon xmatkuilense* P. Reyes, Pinzón, R. Valenz. & Raymundo**
Figure 5P–R

Specimens examined. MEXICO — **Yucatán** • east side of the cemetery, comisaría Xmatkuil; 20°52′06.63″N, 089°37′05.63″W; 14.X.2021; P. Reyes leg.; UADY 3 • ibid.; 11.VII.2023; P. Reyes leg.; UADY 118, 119.

Description. Stromata effused-flattened, 25–100 mm long × 5–20 mm wide × 1 mm thick, surface pruinose, young stromata have a thin layer Dark Vinaceous (82), when mature this layer is lost, leaving remains that appear Brown Vinaceous (84), subsurface blackish, composed of weakly carbonaceous tissue and inconspicuous brownish black granules (Figure 5P); KOH-extractable pigments dark brown (Figure 5Q); perithecia 1.2–1.5 mm diam, obovoid inconspicuous with umbilicate ostioles; asci not seen; ascospores 10–12 × 4–5 µm, unicellular, ellipsoid, inequilateral, narrowly rounded ends, with straight 2/3 spore-length germ slit on the convex side, dark brown, perispore dehiscent in 10% KOH (Figure 5R).

Host. Growing on dead wood of *Gymnopodium floribundum* in deciduous forest.

Distribution. In Mexico it is known from Yucatán (Reyes et al. 2024).

Notes. Reyes et al. (2024) described this species from Yucatan Peninsula. It belongs to the *H. investiens* com-

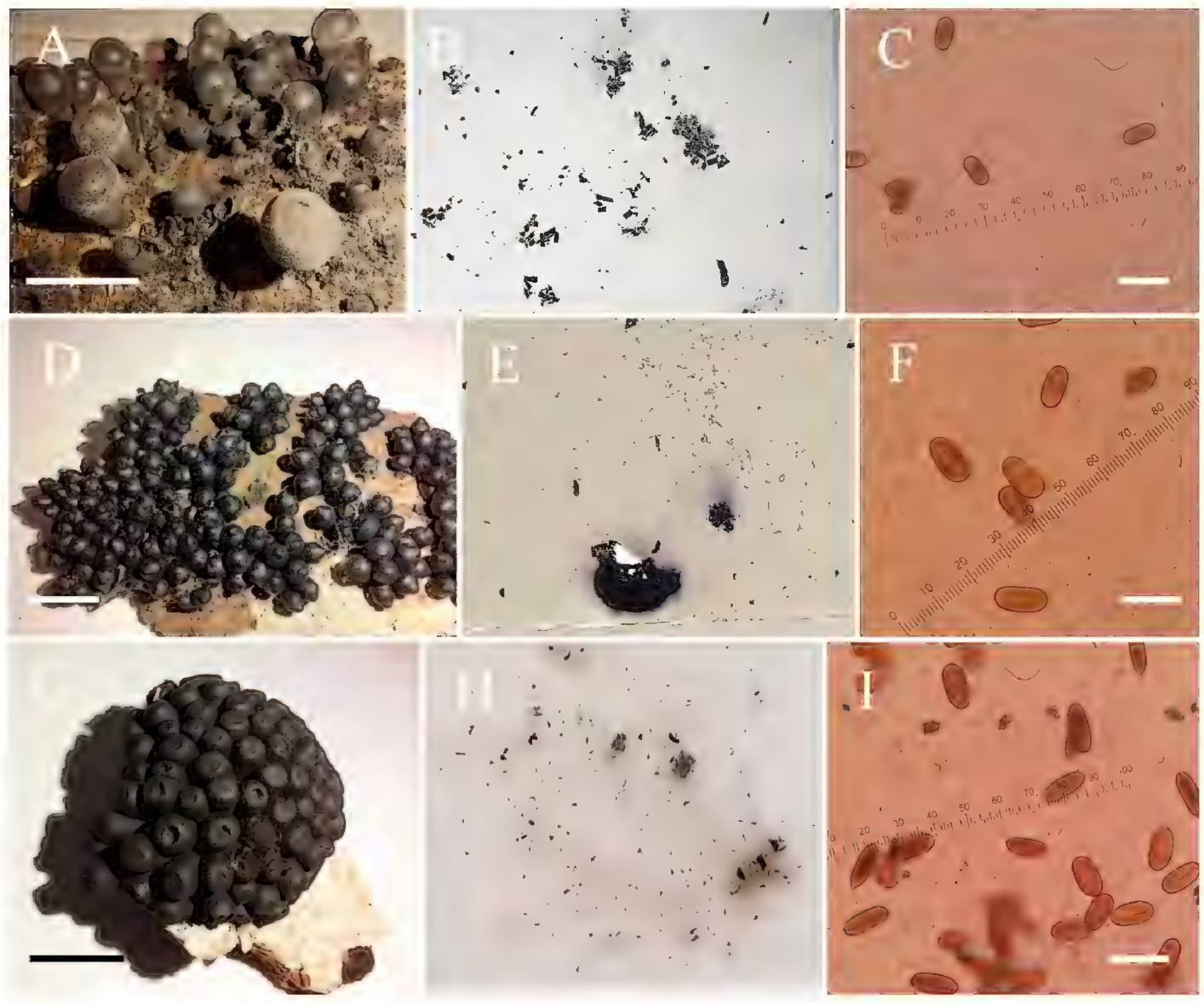

Figure 6. Stromata, KOH-extractable pigments, ascospores. **A–C.** *Phylacia globosa*. **D–F.** *P. poculiformis*. **G–I.** *P. surinamensis*. Scale bars: A, D, G= 5 mm; C, F, I=10 µm.

plex, made up of *H. lateripigmentum* J. Fourn., Kuhnert & M. Stadler, *H. pulicicidum* J. Fourn., Polishook & Bills, *H. hinnuleum* (G. Sm.) Kuhnert & Sir, *H. olivaceopigmentum* Kuhnert & Sir (Ju and Rogers 1996; Bills et al. 2012; Kuhnert et al. 2014; Sir et al. 2019). Fournier et al. (2024) described *H. aeneipigmentatum* J. Fourn. & Lechat as a new taxon from Saül, French Guiana, also related to this complex, based on ITS phylogeny.

***Phylacia globosa* Lév.,** Annales des Sciences Naturelles Botanique 3: 61 (1845)
Figure 6A–C

Specimens examined. MEXICO — **Quintana Roo** • San Ángel, Lázaro Cárdenas; 21°13'52.91"N, 087°26'44.31"W; 13.I.2002; P. Euan leg.; UADY 22 — **Yucatán** • Zona Arqueológica Dzibilchaltún; 21°5'55.40"N, 089°35'53.55"W; 22.XII.1990; H. Cemé leg.; UADY 31 • ibid.; 21.X.1991; H. Cemé leg.; UADY 831 • ibid.; 14.I.2006; J. Rivas leg.; UADY 6 • municipio de Tixkokob; 20°57'54.11"N, 089°20'56.02"W; 18.I.1996; C. Pech leg.; UADY 27 • municipio de Xmatkuil; 20°51'53.61"N, 089°37'18.40"W; 20.I.1994; R. Barrientos leg.; UADY 7 • municipio de Yaxcabá; 20°32'52.57"N, 088°49'39.73"W; 11.XII.2002; L. Ocaña leg.; UADY 2 • ibid.; 11.XII.2002; K. Rodríguez leg.; UADY 11 • ibid.; 16.I.2003; K. Román leg.; UADY 3 • Nohalal; 20°12'28.42"N, 089°17'06.29"W; 26.VI.2008; P. Garma leg.; UADY 145 • Reserva de la Biosfera Ría Celestún; 20°49'47.57"N, 090°24'18.41"W; 20.XI.1993; R. Rejón leg.; 4 UADY • Xtojil; 20°44'37.43"N, 089°20'47.37"W; 21.IX.1993; P. Góngora leg.; UADY 4 • ibid.; R. Osorio leg.; UADY 5 • ibid.; R. Barrientos leg.; UADY 1 • ibid.; L. Casanova leg.; UADY 11 • ibid.; R. Rejón leg.; UADY 3 • ibid.; 27.IX.1994; D. Arce leg.; UADY 5.

Description. Stromata subglobose, constricted at the base or slightly pyriform with a short stipe, 3–10 mm high × 3–7 mm diam, surface black to Violaceous Black (114), solitary to densely gregarious (Figure 6A); KOH-extractable pigments Dark Purple (36) (Figure 6B); asci 8-spored, 25–30 µm long × 10–15 µm wide, without apical ring; ascospores 13–16 × 6.5–9 µm unicellular, broadly ellipsoid to oblong, equilateral, pale translucent brown to light brown, smooth wall, without germ slit (Figure 6C).

Host. Growing on rotten wood in deciduous forest and evergreen forest.

Distribution. Argentina, Brazil, Colombia, Guadeloupe, Venezuela (Rodrigues and Samuels 1989). In Mexico it is known from Chiapas, Nuevo Leon, Puebla, Quintana Roo (Pérez-Silva 1972) and Veracruz (Welden and Guzmán 1978).

Notes. Has globose stromata like *P. bomba*, but this species is sessile.

***Phylacia poculiformis* (Kunze) Mont.**, Annales des Sciences Naturelles Botanique sér. 4, 3: 135 (1855)
Figure 6D–F

Specimens examined. MEXICO — Quintana Roo • El Palmar; 21°2'57.16"N, 090°16'25.05"W; 9.X.2017; B. Gómez leg.; UADY 15 • ibid.; M. Martínez leg., UADY 1 • ibid.; 4.XI.2019; A. Pinzón leg.; UADY 2 • Bacalar; 18°40'41.85"N, 088°23'32.62"W; 30.X.2018; G. Capetillo leg.; UADY 3 — Yucatán • Becanchén; 19°52'41.76"N, 089°13'18.43"W; 16.I.2019; Uitzil-Colli leg.; UADY 222 • ibid.; A. Ruiz leg.; UADY 3.

Description. Stromata inverted pyriform, solitary or in small groups, 3–8 mm wide, with short cylindrical stipes, smooth surface, black with a thin reddish-brown layer (Figure 6D); KOH-extractable pigments Dark Purple (36) (Figure 6E); perithecia packed in the narrowest apical portion of the stromata, cylindrical; asci not seen; ascospores 10–15 × 5–7 µm unicellular, elliptical-cylindrical, pale olive, without germ slit (Figure 6F).

Host. Growing on rotten wood in subdeciduous and evergreen forest.

Distribution. Guyana, Belize, Brazil, Colombia, Ecuador, Panama, Venezuela (Dennis 1957, 1971; Silveira and Rodrigues 1985; Rodrigues and Samuels 1989). In Mexico it is known from Baja California, Chiapas, Hidalgo, Michoacán, Puebla, Tabasco, and Veracruz (Pérez-Silva 1972, Frutis and Guzmán 1983; Díaz-Barriga et al. 1988).

Notes. Distinguished by sessile pyriform stromata with a narrow apex.

***Phylacia surinamensis* (Berk.) Dennis**, Kew Bull. 12 (2): 325 (1957)
Figure 6G–I

Specimens examined. MEXICO — Yucatán • Laguna Xnuc, Reserva Ecológica de Yalahau; 20°39'11.46"N, 089°13'02.34"W; 20.II.2006; L. Ancona leg.; UADY 11.

Description. Stromata densely cespitose, cilindrical to clavate, 3.5–4 mm high × 2–4 mm diam, constricted in the center, black carbonaceous surface, concave apex (Figure 6G); KOH extractable pigments Grey-Olivaceous (107) (Figure 6H); perithecia tubular; asci 8-spored, spherical, 14–18 µm wide; ascospores 11–13 × 6–7 µm, ellipsoid, unicellular, brown to light brown, germ slit straight on spore-length (Figure 6I).

Host. Growing on rotten wood in deciduous forest.

Distribution. Brazil, Guatemala, Suriname (Dennis 1957, 1971). In Mexico it is known from Oaxaca and Veracruz (Medel et al. 2006).

Notes. Characterized by the rosette cylindrical stromata and a long germ slit on the ascospores.

Key for genera of Hypoxylaceae from the Yucatan Peninsula

1 Ostioles present, umbilicate and papillate, surrounded or not by a disc 2
1′ Ostioles absent, perithecia tubular, stromata hemispherical, globose, pyriform, clavate or turbinate, KOH-extractable pigments violet, gray-olivaceous ..... *Phylacia*

2 Ostioles papillate surrounded by a disc 3
2′ Ostioles umbilicate or papillate, not surrounded by a disc 4

3 Ostioles papillate surrounded by a superficial disc, stromata effused-pulvinate, without KOH-extractable pigments ..... *Hypomontagnella*
3′ Ostioles papillate surrounded by a disc resulting from the dehiscence of the stromatal tissue, stromata effused-pulvinate to glomerate, KOH-extractable pigments olive, gray-olivaceous, violet or sepia ..... *Annulohypoxylon*

4 Ostioles mostly umbilicate, perithecia tubular, stromata discoid, peltate, hemispherical, convex on top, KOH-extractable pigments purple, grayish-green, vinaceous ..... *Pyrenopolyporus*
4′ Ostioles papillate and umbilicate 5

5 Stromata with a cavity filled of gelatinous substance, pulvinate, semiglobose to globose, KOH-extractable pigments orange, red, yellow, olivaceous, perithecia spherical to ovoid ..... *Entonaema*
5′ Stromata without a cavity 6

6 Stromata claviform, peltate, placentiform, spherical or cerebriform, KOH-extractable pigments olive, vinaceous, brown, violet, perithecia lanceolate, ovoid to tubular ..... *Daldinia*
6′ Stromata effused-pulvinate, effused-flattened or glomerate, KOH-extractable pigments violet, purplish, brown, yellow, orange or olivaceous, perithecia spherical, ovoid, tubular to lanceolate ..... *Hypoxylon*

Key for species of *Annulohypoxylon* from the Yucatan Peninsula

1 KOH-extractable pigments violet, ascospores 7–8 × 3–4 µm ..... ***A. purpureonitens***
1′ KOH-extractable pigments green to olivaceous 2

2 Ostiolar disc truncatum-type 3
2′ Ostiolar disc bovei-type 5

3 Ostiolar disc <0.1 mm in diameter ..... ***A. archeri***
3′ Ostiolar disc >0.1 mm in diameter 4

4 Ascospores ellipsoid, 6–9 × 2.5–4 µm ..... ***A. moriforme***
4′ Ascospores fusiform, 10–12 × 4–5 µm ..... ***A. fusisporum***

5 Ascospores 5–7 × 2–3 µm, germ slit straight in spore-length on flattened side ..... ***A. stygium***
5′ Ascospores 8–9 × 3–4 µm, germ slit straight in spore-length on convex side ..... ***A. nitens***

Key for species of *Daldinia* from the Yucatan Peninsula

1 Without KOH- extractable pigments, stromata peltate to depressed-spherical, ascospores 6.5–7.5 × 3–4 µm ..... ***D. brachysperma***
1′ With KOH-extractable pigments, ascospores longer than 7.5µm 2

2 Stromata clavate to cylindrical 3
2′ Stromata spherical, placentiform or turbinate 4

3 KOH-extractable pigments violet to sepia, ascospores 8–12 × 4–5 µm, gregarious ..... ***D. clavata***
3′ KOH-extractable pigments grayish-brown, ascospores 10–11.5 × 4.5–5.5 µm, solitary ..... ***D. cuprea***

4 Stromata spherical, KOH-extractable pigments orange-brown, ascospores 12–16 × 5.5–7.5 µm ..... ***D. childiae***
4′ Stromata placentiform or turbinate 5

5 Stromata placentiform, KOH-extractable pigments olivaceous or violet 6
5′ Stromata turbinate, KOH-extractable pigments vinaceous or violet 7

6 KOH-extractable pigments olivaceous, ascospores 9–16 × 4.5–8 µm, presence of latex when cutting ..... ***D. placentiformis***
6′ KOH-extractable pigments violet, ascospores 10–14 × 5–6.5 µm, absence of latex when cutting ..... ***D. eschscholtzii***

7 KOH-extractable pigments vinaceous, ascospores 12–18 × 6–8 µm, germ slit slightly sigmoid on flattened side, perispore dehiscent ..... ***D. caldariorum***
7′ KOH-extractable pigments violet, ascospores 11.5–14.5 × 6.5–8.5 µm, germ slit straight on convex side, perispore indehiscent ..... ***D. vernicosa***

Key for species of *Hypoxylon* from the Yucatan Peninsula

1 KOH-extractable pigments green to olive 2
1′ KOH-extractable pigments amber, orange, purple, vinaceous, vinaceous-brown, sepia, brown, gray 4

2 Perispore indehiscent, ascospores 7–8 × 3.5–4 µm, perithecia tubular, germ slit straight less than spore-length on the convex side ..... ***H. investiens***
2′ Perispore dehiscent, ascospores longer than 8 µm 3

3 Stromata effused-pulvinate, surface brown, ascospores 8.5–13.5 × 4–6 µm ..... ***H. anthochroum***
3′ Stromata glomerate to effused-pulvinate, surface brown vinaceous, ascospores 13–23 × 6–10 µm ..... ***H. subrutilum***

4 KOH-extractable pigments amber to luteous 5
4′ KOH-extractable pigments orange, purple, vinaceous, vinaceous-brown, sepia, brown, gray 9

5 Germ slit oblique to sigmoid 6
5′ Germ slit straight 7

6 Surface rust to orange, ascospores (8–)9–12 × 4–5.5 µm, germ slit faintly sigmoid in spore-length ..... ***H. fendleri***
6′ Surface dark brick, ascospores (6.5–)7–9 × 3–4 µm, germ slit oblique to sigmoid in less than spore-length ..... ***H. hypomiltum***

7 Surface brown-vinaceous,ascospores 9–12.5(–13) × 4–5.5 µm, perispore indehiscent ..... *H. macrocarpum*
7′ Surface dark brick or rust, perispore dehiscent 8

8 Surface dark brick, ascospores 9–12 × 4–6 µm, germ slit in spore-length, ostioles surrounded by a white disc ..... *H. perforatum*
8′ Surface rust, ascospores 10–12 µm × 4–6 µm, germ slit less than spore-length, ostioles not surrounded by a disc ..... *H. bellicolor*

9 KOH-extractable pigments orange to reddish-orange 10
9′ KOH-extractable pigments purplish, vinaceous, brown-vinaceous, sepia, grayish 17

10 Stromata black or olivaceous 11
10′ Stromata orange to rust 12

11 Surface black to sepia, ascospores 7.5–9 × 3–4 µm, germ slit faintly sigmoid ..... *H. erythrostroma*
11′ Surface olivaceous, ascospores, 9.5–11 × 4–5 µm, germ slit straight to slightly sigmoid .... *H. olivicolor*

12 Stromata orbicular to effused-flattened, ascospores 10–12 × 5–6 µm, perispore indehiscent ..... *H. cinnabarinum*
12′ Stromata effused-pulvinate, perispore dehiscent 13

13 Germ slit straight to sigmoid, ascospores 9.5–15(–17.5) × 4–7(–7.5) µm ..... *H. crocopeplum*
13′ Germ slit only straight 14

14 Ascospores 13–18 × 7–8 µm, germ slit straight almost the spore-length ..... *H. haematostroma*
14′ Ascospores shorter than 13 µm, germ slit in the spore length 15

15 Ascospores 6.5–7.5 × 3–4 µm ..... *H. rickii*
15′ Ascospores 9–12 × 4–6 µm 16

16 Reddish-orange granules beneath surface, asci 100–130 µm total length ..... *H. subgilvum*
16′ Orange-brown granules beneath surface, asci 140–180 µm total length ..... *H. rubiginosum*

17 KOH-extractable pigments purplish, germ slit sigmoid in the spore-length ..... *H. lividipigmentum*
17′ KOH-extractable pigments vinaceous,brown-vinaceous, dark brown, sepia 18

18 KOH-extractable pigments vinaceous, surface cyan blue, ascospores 7–11.5 × 4–5 µm, inconspicuous ..... *H. aeruginosum*
18′ KOH-extractable pigments brown or sepia, surface with colors different from blue 19

19 KOH-extractable pigments dark brown, brown-vinaceous to reddish 20
19′ KOH-extractable pigments sepia to grayish-sepia 22

20 KOH-extractable pigments dark brown, stromata effused-pulvinate, ostioles umbilicate, germ slit straight in ⅔ spore-length ..... *H. xmatkuilense*
20′ KOH-extractable pigments brown-vinaceous to reddish, stromata glomerate, ostioles slightly papillate, germ slit sigmoid in the spore-length 21

21 KOH-extractable pigments brown-vinaceous to umber, ascospores 9–11 × 4–5 µm ..... *H. jaklitschii*
21′ KOH-extractable pigments reddish to brown vinaceous, ascospores 11–15 × 4–6 µm .. *H. lenormandii*

22 Perispore dehiscent, KOH-extractable pigments sepia, ascospores 9.5–14 × 4.5–6.5 µm, germ slit straight less than spore-length ..... *H. duranii*
22′ Perispore indehiscent, KOH-extractable pigments grayish-sepia, ascopores 6.5–11 × 3–4 µm, germ slit straight in spore-length ..... *H. dieckmannii*

Key for species of *Phylacia* from the Yucatan Peninsula

1 Stromata spherical to subglobose 2
1′ Stromata pyriform, cylindrical to turbinate 3

2 Ascospores 10–13 × 5–7 µm, sessile ..... *P. bomba*
2′ Ascospores 13–16 × 6.5–9 µm, with a short stipe ..... *P. globosa*

3 Stromata pyriform 4
3′ Stromata cylindrical to turbinate 5

4 Stromata pyriform, ascospores 9.5–11 × 4.5–5 µm ..... *P. sagrana*
4′ Stromata inverted pyriform, ascospores 9.5–11 × 4.5–5.5 µm ..... *P. poculiformis*

5 Stromata cylindrical, gregarious ..... *P. surinamensis*
5′ Stromata turbinate, solitary ..... *P. turbinata*

Key for species of *Entonaema, Hypomontagnella* and *Pyrenopolyporus* from the Yucatan Peninsula

1 Stromata globose to irregular with a cavity filled of gelatinous substance 2
1′ Stromata discoid or effused-pulvinate, without cavity 3

2 KOH-extractable pigments orange, ascospores 8–10 × 5–6 µm, germ slit straight in spore-length ..... *Entonaema globosum*
2′ KOH- extractable pigments yellow, ascospores 10–12 × 5.5–7 µm, germ slit straight less than spore-length ..... *E. liquescens*

3 Stromata discoid with crenate margin, convex on top, surface sepia, KOH-extractable pigmenst purplish, ascospores 11.5–14 × 5–5.5 µm, germ slit straight less than spore-length ..... *Pyrenopolyporus hunteri*
3′ Stromata effused-pulvinate, surface dark brown when young and black at mature, without KOH-extractable pigments, germ slit sigmoid or straight in the spore-length 4

4 Ascospores 8–10 × 4–5 µm, germ slit sigmoid ..... *Hypomontagnella monticulosa*
4′ Ascospores 11–15 × 5–6 µm, germ slit straight ..... *H. rubigineoareolata*

DISCUSSION

In their global study of metabarcoding of soil fungi from environmental samples, Tedersoo et al. (2022) discovered that the Yucatan Peninsula (YP) is one of the areas with highest fungal endemism in the world. In this sense, the study of Hypoxylaceae in this area is relevant due to the following biogeographic elements: most of the area is a plain that was formed from a marine platform made up of calcareous rock from the recent Tertiary (Butterlin and Bonet 1960); it has a high diversity of types of vegetation as coastal dune vegetation, mangroves, deciduous forest, evergreen forest, savannas and petenes; 85.5% of the territory has a warm subhumid climate (Duno et al. 2023) which has been reported as the best climate for diversification in the Xylariaceae and Hypoxylaceae (Ju and Rogers 1996).

Furthermore, the types of *Daldinia brachysperma* in Othón P. Blanco, Quintana Roo and *Hypoxylon duranii* from this biotic province have been registered in the archaeological site of Chichen Itza, Yucatan (Ju et al. 1997; San Martín et al. 1999). This paper contains the nomenclatural updates of Hypoxylaceae from YP, since the most relevant reviews considered some now separated taxa as *Hypoxylon* (Guzmán 1983; Medel et al. 1989; San Martín et al. 1999).

From the herbarium and field data obtained from the YP, we find that *Hypomontagnella monticulosa* is the most abundant species with 43 specimens recorded in almost all vegetation types except coastal dunes and was registered in the three states that integrate the YP; also, *Daldinia eschscholtzii* with 37 specimens in deciduous forest. The most diverse genus was *Hypoxylon* with 16 species. It is worth mentioning that *H. lenormandii* and *H. haematostroma*, reported with a wide distribution in the world and in Mexico, were not common in the YP.

This revision includes two recently described species: *Annulohypoxylon fusisporum* from eveergreen forest and *Hypoxylon xmatkuilense* from deciduous forest (Reyes et al. 2024). Given that this fungal family has an endophytic and potentially phytopathogenic lifestyle, it is important to correctly identify taxa to infer the impact they might have on ecosystems. Explorations of fungal diversity must continue in the Yucatan Peninsula since it is an area of great opportunity for discovery and description of new taxa to enrich the knowledge of the family Hypoxylaceae in the Neotropics.

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ADDITIONAL INFORMATION

Conflict of interest

The authors declare that no competing interests exist.

Ethical statement

No ethical statement is reported.

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Author contributions

Conceptualization: PER, JPP, RV. Identification and specimen description: PER, RV, TR. Writing – original draft: PER. Writing – review and editing: JPP, JTG. All authors revised the manuscript.

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Data availability

All data that support the findings of this study are available in the main text.

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